



ProEconomy | orca

Copper and Silver Water Treatment

# Case Study

## Churchill Hospital

Controlling *Legionella* risk in a Oxford hospital building using copper and silver ionisation

**Background**

The Churchill Hospital (part of the John Radcliffe, Oxfordshire) is a teaching hospital in Oxford, England. The hospital was established in 1942 and is primarily a centre for the treatment of cancer patients, with research and teaching facilities. It has 180 in-patient and 100 day care beds. The Orca Copper and Silver Ionisation system (CSI) system was installed at the Churchill Hospital in November 2014.

**Sampling**

Before the CSI system was activated, pre-commissioning samples were taken from 16 outlets identified as being at risk of *Legionella* contamination. After activation of the CSI system, samples were taken every month from 9 to 20 outlets that showed risk of *Legionella* contamination and were analysed for *Legionella* by the culture method and for copper and silver by Inductively Coupled Plasma-Optical Emission Spectroscopy/Mass Spectrometry (ICP-OES/MS), by UKAS accredited laboratories (ALcontrol and ALS Laboratories, UK). The number of outlets sampled was then reduced to 11 outlets, after ProEconomy was satisfied that *Legionella* was being controlled, and it was reduced to six outlets sampled monthly in the past year.

**Results**

The results of the pre-commissioning samples (November 2014) are shown in Figures 1 and 2. A total of nine of the 16 outlets tested showed the presence of *Legionella pneumophilla* SG2-14

with counts of 100 (2), 200, 300, 600 (2), 1300, 1400 and 5200 cfu/L. One outlet had flexible hoses and a large deadleg, which caused *Legionella* to persist there for longer than in other outlets. The number of outlets sampled was then reduced to 11 outlets, after ProEconomy was satisfied that *Legionella* was being controlled, and for the past year, six outlets are sampled monthly. *Legionella* at counts above 100 cfu/L persisted in some outlets until April 2015 (Figure 1), due to flexible hoses and deadlegs. Since June 2015 (6 months after commissioning) *Legionella* has been controlled, with only three outlets showing low counts (100 cfu/L of mainly non-pneumophila). No *Legionella* has occurred in any of the tested outlets at Churchill Hospital after July 2016 (Figures 1 and 2).

**Conclusion**

There was enough evidence to show *Legionella* posed a real threat to the hospital. *Legionella* control using a CSI system was achieved from May 2015 and total *Legionella* eradication was achieved from August 2016 onwards. The system, like any other *Legionella* control system, must be monitored regularly so that any problem outlet is quickly detected and dealt with. *Legionella* has been totally eradicated from the Churchill Hospital for about a year now and as a result, ProEconomy is now providing *Legionella* control to the whole of the John Radcliffe Hospital.

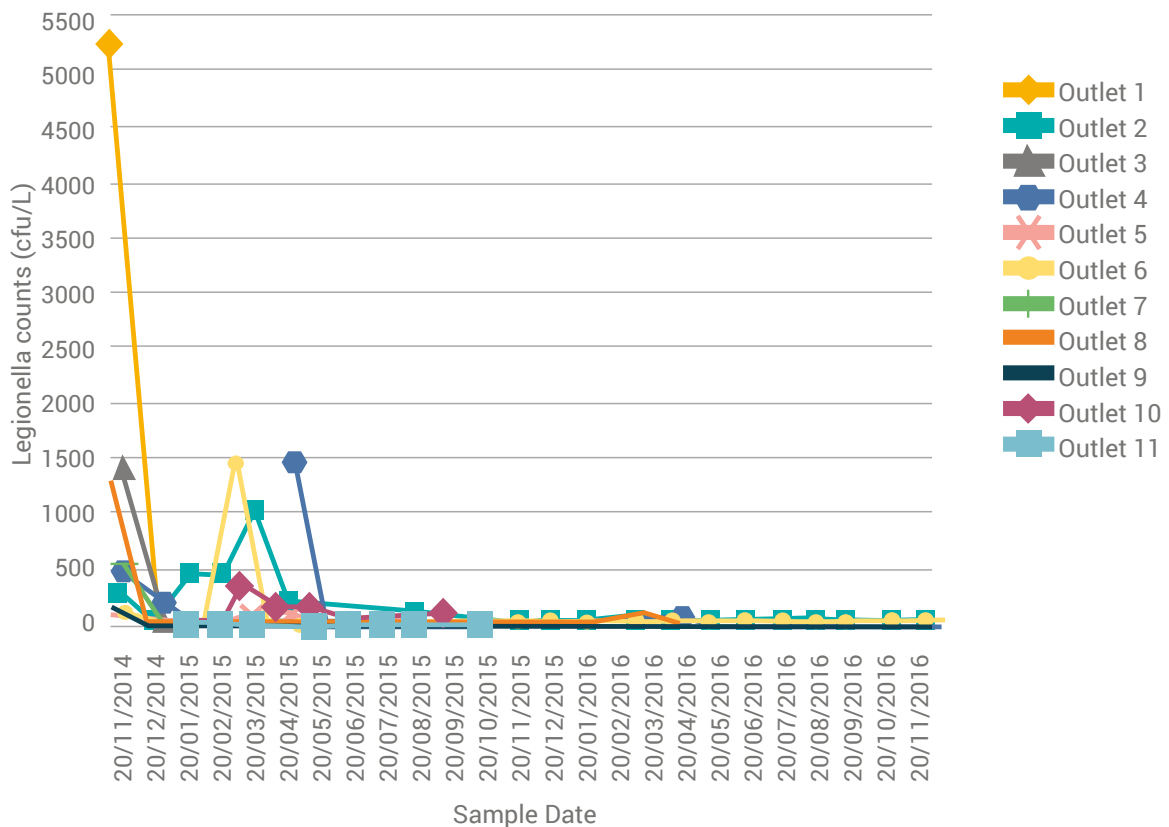
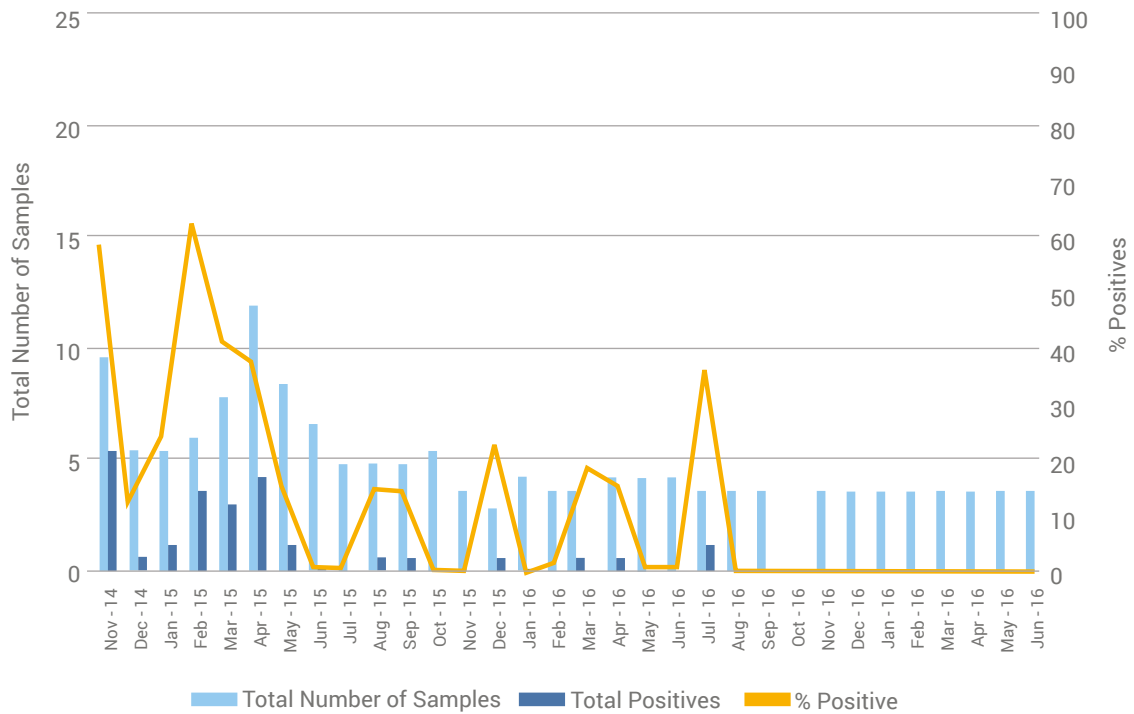


Figure 1. Legionella counts at eleven outlets



**Figure 2.** Total number of samples taken per month, number of positives and percentage of *Legionella* positives.

### Testimonial

In an interview with Hospital Times magazine, Claire Hennessey, Head of Operational Estates for Oxford University Hospitals NHS Foundation Trust, had the following to say about their experience with the Orca system: “We started with an installation at the head and neck ward at the Churchill Hospital, where we had the showers out of use and where calorifiers giving us temperature control issues. Depending on how the system worked, it would be a showcase of what we could introduce to the bigger site at John Radcliffe. The result was amazing. In the pre-sample, before the ProEconomy system went in, we had nine positives out of 16 sites sampled. In the first month sampling, after the installation, we were down to just one positive. That one positive stayed for a while. The system allowed us to see that and we evidenced that the outlet concerned was used very infrequently.”

A scientist in a white lab coat and safety glasses is holding a test tube in a laboratory setting. The image is overlaid with a blue tint. The text 'ProEconomy | orca' is centered over the image.

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